

- Food
- Food Additive
- Cosmetic
- Quasi-drug



Hokkaido Wakkanai Ray (Rajidae)

『 Nano Type Chondroitin® 』

Patent Technology

Upcycling

Healthy Do

Technical
Data

The molecular weight-reduced with patented technology



Deep Fried Ray

Expected Function

- ◎ Arthritis treatment, anti-inflammatory effect
- ◎ Improving locomotive syndrome
- ◎ Antitumor activity
- ◎ Improving skin function
- ◎ Moisturizing the skin
- ◎ Lipase inhibitory activity
(Suppressing fat accumulation in adipocytes, anti-obesity, diet effect)

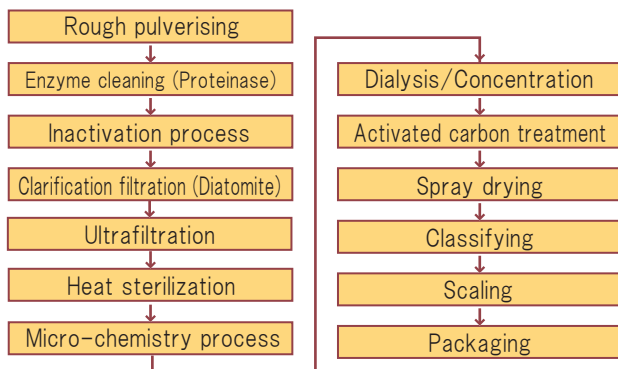
Recommended Dosage

- ◎ 10-100mg/day (by in-house exam)

Use of Trademark

- ◎ "Nano-type chondroitin®" is a registered trademark in Japan. To display the trademark on your product, the trademark use contract is required.
- ◎ Use of Hokkaido University logo
The Hokkaido University logo can be displayed on your product. Please contact us if you need it.

Production Process



The ray (Rajidae) is commonly eaten in Hokkaido and Tohoku region for a long time, and Wakkanai makes up 50% of its haul in Japan. The fin part was only consumed, and all the other parts are thrown away. The ray is a member of elasmobranchii family same as shark, and its bones are mostly configured by cartilage. We focused on these characteristics.

Research is done based on industry-academia-government collaboration to extract chondroitin sulfate from the cartilage.

Chondroitin sulfate usually consists of polysaccharide (molecular weight around 0.1 MILL to 0.15 MILL), however, we successfully lower the molecular weight of polysaccharide with 2 to 12 saccharide (molecular weight around 500 to 3,000) by using the patented technology of Micro-chemistry process manufacturing method which is invented by Hokkaido Bureau of Economy, Trade and Industry, Hokkaido Industrial Research Institute and Hokkaido University. Because of the process, absorption rate of chondroitin into the body dramatically increase. By increasing the the quality of the ingreideint, we can reduce the dosage and cost at the same time.

Uses

- ◎ Supplements, drinks and processed food for joints.
- ◎ Supplements, drinks and processed food for beauty and health.

Display Name Example

- ◎ Chondroitin sulfate oligosaccharide, Low molecular chondroitin, etc.

Quality Standard Composition

Material	Cartilage of Ray (Rajidae)
Chondroitinsulfate	Over 80%
Property	White to light yellow water-soluble powder
Moisture	Less than 10%
Ph (1% water solution)	3.0~5.0
Heavy metal (as Pb)	Less than 10ppm
Viable count of bacteria	Less than 3,000 cfu/g
Coliform bacteria	Negative
Crystal size	30 mesh pass

Other

Quantity	1kg, 10kg
Shelf life	2 years from the production date
Storage condition	Keep in cool dry place, and avoid direct sunlight.

Company Information

Ver.2304

North Life Co.,Ltd.

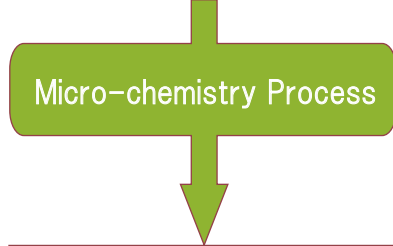
Uni Building 2F, Nishimachi Kita 6 Chome1-1
Nishi-ku, Sapporo, Hokkaido, JAPAN 063-0061
TEL +81-11-887-7970 FAX +81-11-887-7971
E-mail: info@northlife.co.jp WEB: www.northlife.co.jp/

■ What is Nano Type Chondroitin® ?

Chondroitin sulfate is constructed by macromolecules (molecular weight of 0.1 MILL to 0.15 MILL). Glucuronic acid and N-acetylgalactosamine: minimum unit of disaccharide bonding forms those macromolecules.



Typical chondroitin sulfate = Macromolecules/weight 0.1 MILL to 0.15 MILL



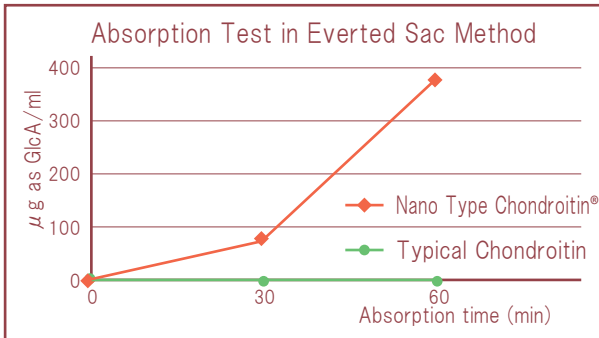
· Hokkaido Bureau of Economy,
 Trade and Industry
 · Hokkaido Industrial Research Institute
 · Hokkaido University
 collaborative research invented
 patented technology.

Nano type chondroitin® = Oligosaccharide(2 to 12 molecules)/weight around 500 to 3,000

The macromolecule chondroitin sulfate which is extracted from Ray caught around Wakkanai is decomposed by antienzymatic micro-chemistry process manufacturing method. We named the decomposed chondroitin sulfate oligosaccharide as "Nano type chondroitin®". This successive mass production process of Nano type chondroitin® is world's first cutting edge technology.

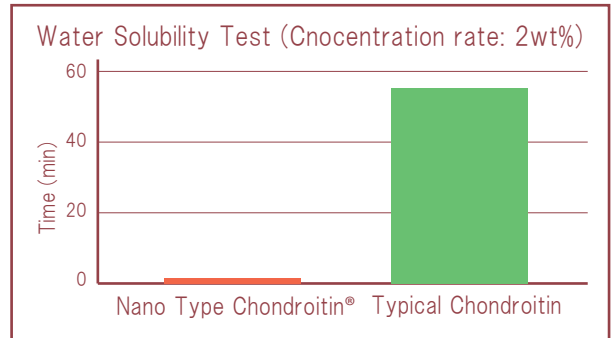
■ Impressive absorption rate of chondroitin into the body

As a result of absorption test using everted sac method of laboratory rat, absorption rate of Nano type chondroitin® is more than 254 times as absorbable as the macromolecule chondroitin.



■ High in water solubility

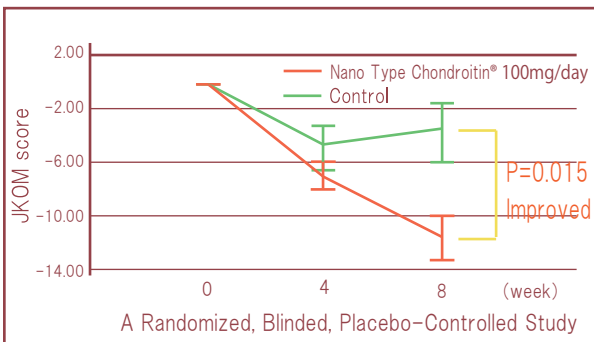
Comparing Nano type chondroitin® and macromolecule chondroitin, Nano type chondroitin dissolves easily, and prevents lumps in water, thus Nano type chondroitin is suited for the all sorts of processing.



■ Clinical Study Data



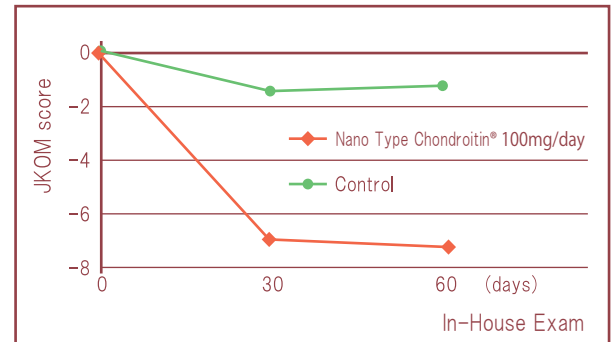
Clinical test is conducted with cooperation of the subjects ingested 100mg/day of Nano type chondroitin®. As a result, the JKOM score related to locomotive syndrome is improved with ingested group.



■ Improving JKOM Score



Informal test is conducted with cooperation of the osteopathic clinic. Subjects ingested 10mg/day of Nano type chondroitin®. As a result, the function evaluation scale of patients with deformed knee arthropathy (JKOM) is improved.



Company Information